

Green Government Certification

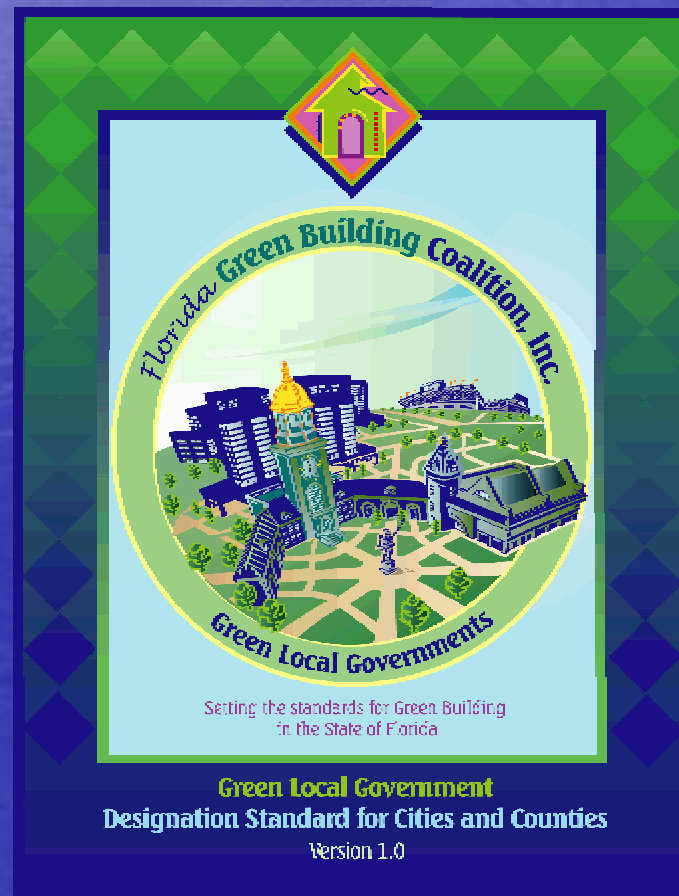
Why should you be certified?

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Green Building at the Local Government Level:

***An introduction to Florida's Standard for City and
County Governments***



Green Building at the Local Government Level:

- Florida Energy Office, Florida Solar Energy Center, Florida Green Building Coalition, and Miami-Dade DERM have developed a Florida Green Local Government Standard.
- Four Florida local governments were selected to act as models in the development of the standard.

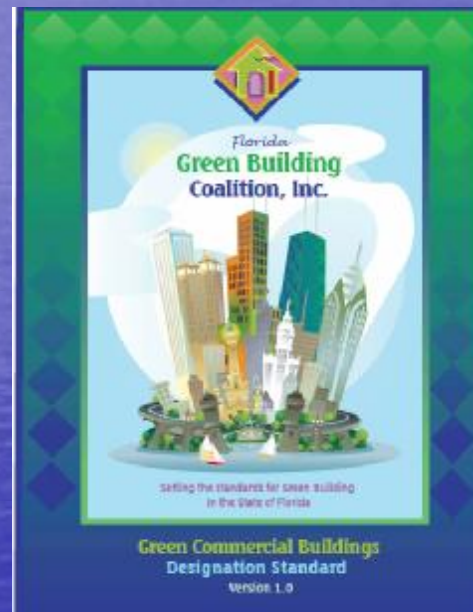


- Florida Green Local Government Standard allows any Florida City or County to apply, and if requirements fulfilled, be certified "green" by the non-profit Florida Green Building Coalition.

Background

- The theme of the effort involved fostering communication between various statewide and local energy and environmental groups who are essentially working for the same cause, but rarely work together.
- Florida looks towards the concept of green building to foster these linkages.
- Florida looks to implement the concept at the local government level where the program has impact with the surrounding community.

Stewardship



Sustainable Development...

- is development that meets the needs of the present without compromising the ability of future generations to meet their **own needs**. (World Commission on Env and Dev, 1987 -- Our Common Future, the Brundtland Report)
- is non-declining human well-being over time.



Key Steps toward Sustainability

- Education and the first step is to educate yourself.
- Listening and the first step is to listen to others.
- Partnerships and the first step is to search out collaborators.



Sustainable Communities Partnership

- Business Partners
- University Partners
- Government Partners
- Not-for-profit Partners
- Community members

*Linking people together for the
common good!*



Why Should You Move to Sustainability?

- Case Study!



Why Should Pinellas County Move to Sustainability?

- Pinellas County is the most densely populated County in Florida
- Since 1990, the county's population has increased by an average of 6,255 people a year.
- This continual increase in the county's population impacts the county's fragile environment and natural resources.
- The county recognized a need to manage these resources for a sustainable future.



Why should Pinellas County Move Toward Sustainability?

- PINELLAS BY DESIGN

"In order to successfully compete with other regions to attract and retain high-wage primary employers, the county needs to offer incentives to qualifying companies."



Why should Pinellas County Move Toward Sustainability?



In Pinellas County, most of the housing stock is existing. New homes sales are a very small minority of the total housing supply about 4.4%.

“MLS listings for 2006”



Why should Pinellas County Move Toward Sustainability?

- "The inevitability of change in some locations, especially highly desirable areas, like the barrier islands, must be acknowledged, but redevelopment planning can help ensure the changes are positive."

"PINELLAS BY DESIGN"



Why should Pinellas County Move Toward Sustainability?

- To develop a proactive staff that addresses the needs of our future clientele
- To establish an environment where county staff can work cooperatively with those who have the same philosophy.



Why should Pinellas County Move Toward Sustainability?

- To create change that enhances the social, economic, and environmental health of the citizens, communities, and natural systems in Pinellas County.



Pinellas County's Move to Sustainability

- The BCC adoption of the Sustainable Strategic Plan and the Green County designation are the tools to fulfill the vision of that plan.
- The Sustainable Resolution focuses back to Pinellas County's mission and the document "Pinellas by Design."



Pinellas County's Move to Sustainability

- A formalized program ensures the environmental needs and the needs of our citizens are met through a sustainable approach.
- Adopting the Florida Green Building Coalition resolution is a statement for a formal program that sets green guidelines and practices throughout Pinellas County Government.



Pinellas County's Move to Sustainability

- Pinellas County used their in-house resources to achieve the FGBC Green Government Designation.
- County Extension's Sustainability Agent
 - Project manager
- County Extension's Intern – Gillian Crippen

Needed a project that was MEANINGFUL!

-- Project Coordinator

Non-threatening



Pinellas County's Move to Sustainability

- Separated by departments (some different than requirements)
- Excel enabled flexibility
- Gillian's organization enabled the successful completion of the designation in 90 days!



To Be or Not To Be ... *Sustainable*

Q & A

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Appendix A

- Additional Case Studies

University of Florida School of Building
Construction--Rinker Hall

8,000 sq. ft. Office Building



What's The Cost?



Case
Study:
Rinker
Hall at the
University
of Florida



Case Study

- Rinker Hall is a leadership facility within the University of Florida's College of Design and Construction, that includes 1,000 students and 100 faculty members. Rinker Hall serves the students of the School of Building Construction, the nation's oldest and most recognized program of this type. Accommodating 450 students, the building includes a mix of classrooms, teaching labs, construction labs, faculty and administrative offices, and student facilities



Case Study (cont'd)

- 47,300 sq. ft.; 3 story building that cost \$6.5 million, \$137.50 per sq. ft.
- Green strategies employed in the building cost an additional \$182,000.
- Annual utility savings are \$21,900 yielding a simple pay back in 8.3 years, considering energy cost projections for the next 25 years.



Case Study (cont'd)

- The previous does not capture any of the intangible benefits of improved productivity, health, or well-being.



Case Study (cont'd)

Green Strategies

- **Responsible Planning**
 - Ensure that development fits within a responsible local and regional planning framework
- **Support for Appropriate Transportation**
 - Provide showers and changing areas for bicycle and pedestrian commuters
 - Provide storage area for bicycles
 - Provide access to public transportation
 - Provide vehicle access to support car and vanpooling



Case Study (cont'd)



- 18,000 SF roof collects about 4 ft. of water throughout the year.
- 8,000-gallon cistern collects storm water from the roof for an 80% reuse in flushing toilets and ground floor urinals.
- Outdoor potable water use: 0 gal/yr.
- With a 1,000 student and 100 faculty daily population, the building uses less water than a family of 4.



Case Study (cont'd)

Energy

- Rinker Hall is anticipated to use 57% less energy than a comparable, baseline building designed in minimal compliance with the American Society of Heating, Refrigeration, and Air Conditioning Engineers (ASHRAE) 90.1-1999.



Case Study (cont'd)

- Based on the ASHRAE humid climate belt and using a U.S. Department of Energy (DOE) model there is a 22% reduction in peak A/C load, providing a 40% total load reduction with the use of an energy recovery ventilator (ERV).
- Optimization strategies like day lighting, energy efficient envelope and roof, occupancy sensors, shading, and the west thermal wall achieved another 60% load reduction.



Case Study (cont'd)



- **Diversion of Construction & Demolition Waste**

- More than half of the construction waste materials were recycled



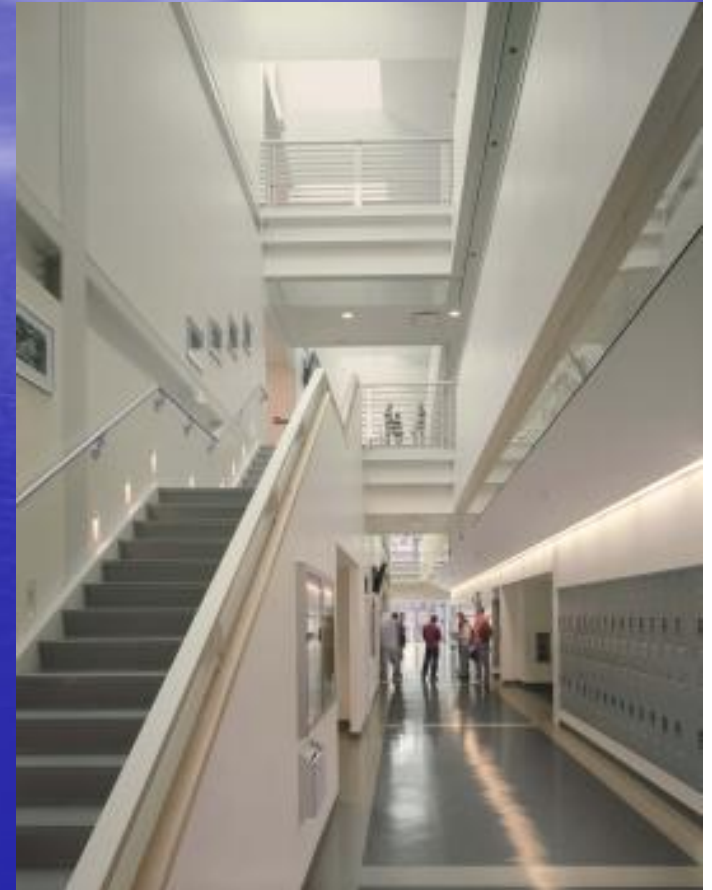
Case Study (cont'd)

- Design for Adaptability to Future Uses
 - The University anticipates 40 to 60 technology upgrades, 15 to 20 "in use" renovations, and one or two full adaptive reuse scenarios over the life of the building.



Case Study (cont'd)

- The building achieves a 30% overall increase in usable light (with a 15° or higher incidence to glass) duration (4,153 hours, compared to 3,171 hours in the base case). Further, the design case achieves a 48% increase in low-angle light (1,325 hours, compared to 686 hours in the base case). Reducing the need for artificial light considerably.



Case Study (cont'd)

Green Strategies

Visual Comfort and The Building Envelope

- Use skylights and/or clerestories for day lighting
- Choose interior and exterior glazing to maximize daylight transmission

Visual Comfort and Interior Design

- Select only white to midrange finishes to maximize reflectance of light



Case Study (cont'd)

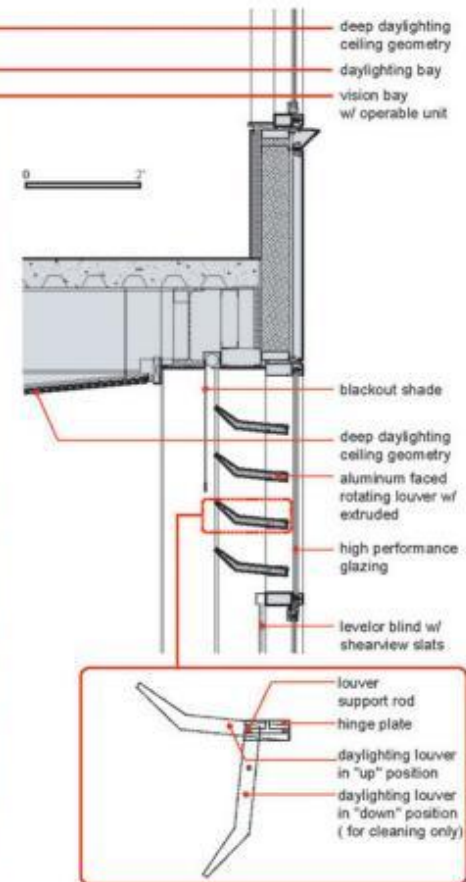
- Visual Comfort and Light Sources
 - Provide illumination sensors
- Reduction of Indoor Pollutants
 - Use only very low or no-VOC paints
- Facility Policies for IEQ
 - Recommend a non-smoking policy for the building



Case Study (cont'd)



Northwest Lecture Hall @ 2nd Floor



Leading an effort... to a new way of life.
Green Real Estate Education

Case Study (cont'd)

Total Annual Building Energy Consumption

Fuel		Cost	MMBtu	kBtu/ft2	\$/ft2
Total Purchased			1,430	30.1	
Grand Total			1,430	30.1	



Case Study (cont'd)

Annual End-Use Breakdown

End Use	Quantity	MMBtu	kBtu/ft2
Heating	250 MMBtu	250	5.29
Cooling	266 MMBtu	266	5.63
Lighting			
Fans/Pumps			
Plug Loads and Equipment			
Vertical Transport			
Domestic Hot Water			
Other			
Unspecified End Use		909	19.2



Case Study (cont'd)

Peak Power

Fuel	Quantity	English
Electricity (Summer)	136 kW	2.88 W/ft ²



Case Study (cont'd)

Building Energy Load

Load		
Cooling Load	103 ton	459 ft ² /ton
Connected Lighting	47.3 kW	1 W/ft ²

Reliability

These numbers were calculated from energy use and peak demand numbers provided for the AIA Green Project competition. Those numbers were provided on a per-square-foot basis.



Office Building Cost / Benefit

	Standard Building	Energy Efficient Building	
E-Wall or SIP and SIP Roof	No	0	<u>Addit. Const. Costs</u>
Electronic Ballast Lighting / LED Lighting	No	\$10,000	\$15,000.00
High Efficiency A/C	No	\$0	<u>% Add. Const. Cost:</u>
Double Pane, Low-E Windows	No	\$5,000	1.00%
Passive Solar Water Heating	No	\$5,000	
Construction Cost	\$1,500,000.00	\$1,515,000.00	
Monthly Finance Cost (20 years @ 6.5%)	\$9,481.02	\$9,575.83	<u>Monthly Utility Savings:</u>
Monthly Electric Bills (60% Lower w/Efficiency)	\$2,000.00	\$800.00	\$1,200.00
Non-Combustible	No	Yes	
No Mold and Mildew	No	Yes	
Disaster Resistant - Hurricanes, Floods, Fires	No	Yes	
Healthy Indoor Air Quality	No	Yes	
Pest Resistant	No	Yes	
Low Noise Transmission	No	Yes	
Enhanced Lighting Effectiveness	No	Yes	
Low Maintenance	No	Yes	
Additional Interior Usable Footage (SF)	No	Yes	600
Monthly Out-of-Pocket	\$11,481.02	\$10,375.83	
Savings, from Day One >>>>>>>>>		\$1,105.19	per month
Savings, from Day One >>>>>>>>>		\$13,262.28	per year
MORE BUILDING FOR LESS MONEY!			